

## A COLLECTOR/MAILING CONTAINER FOR SHIPMENT OF LIVE INSECTS<sup>1</sup>

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**ABSTRACT:** This paper describes a functionally complete dual purpose container for the collection and shipment of live insects. The container permits insertion of food through a large opening at one end and insertion of insects through a trap-like funnel opening at the other end.

For a project on population genetics, we needed to obtain live adult *Diabrotica* from many geographic localities. A simple, inexpensive container was devised so volunteers could readily collect the beetles and send them to our lab via U.S. mail. Convenience of handling by cooperators was a major concern in the design. Given the increase in studies involving live insects from diverse geographic areas, I thought that others might profit from the design. It should be readily adapted to use with other insects and foods.

The device (Fig. 1) serves both as a collecting container and mailer. Materials required are: (1) a mailing tube<sup>3</sup> (we used a 2-inch by 12-inch size from the Chicago Paper Tube and Can Company, Inc., 925 West Jackson Boulevard, Chicago, Illinois 60607) with telescoping end caps, special ordered so neither end cap is glued in place; (2) a 4-oz plastic household funnel with the tip cut off and the flared part trimmed to fit snugly into the mailing tube (Fig. 1b); (3) a piece of hardware cloth, 1/4-inch mesh; (4) nylon fiber tape, 1 inch wide; (5) silicone plastic bathtub sealer; and (6) optionally, Teflon® TFE fluorocarbon resin dispersion, type 30, (EI Dupont De Nemours and Company, Plastic Products and Resins Department, Wilmington, Delaware 19898).

The funnel is glued in place with bathtub sealer as shown in Fig. 1. The hardware cloth insert (outline in Fig. 1c) is folded to the shape shown in Fig. 1d and positioned in the tube as outlined in Fig. 1e to hold the food source firmly in place so the insects are not crushed during rough handling. The flexible hardware cloth allows the food to be secured firmly in place. The metal ends of each cap are perforated for ventilation. Both inner and outer funnel surfaces can be painted with the Teflon dispersion to reduce escape of insects during collection.

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<sup>3</sup>Mention of a proprietary product in this paper does not constitute an endorsement of this product by the USDA.

A length of nylon fiber tape is wrapped completely around the end caps in position 1, Fig. 1d. A second tape is wrapped over the first. In use, the cooperator removes the cap from the food end and, in the case of *Diabrotica*, inserts an immature ear of corn so it fits snugly in the food chamber. The cap is replaced and the second piece of tape moved from position 1 to position 2. Beetles are inserted in to the mailer through the funnel. Once filled, the cap is placed on the funnel end and fixed in place with tape as previously described.

The mailing tube should be porous, i.e., not waxed or otherwise treated to be impermeable to water. This prevents excess condensation.

A self-addressed stamped mailing label and appropriate shipping permits were affixed to the center of the tube along with the statement "perishable-live insects."

Use of a tube with both ends open is an important feature; it provides a large opening for the insertion of food at one end and a small funnel opening for the convenient insertion and temporary holding of insects at the other end. Insects can be placed in the container by knocking them into the funnel,

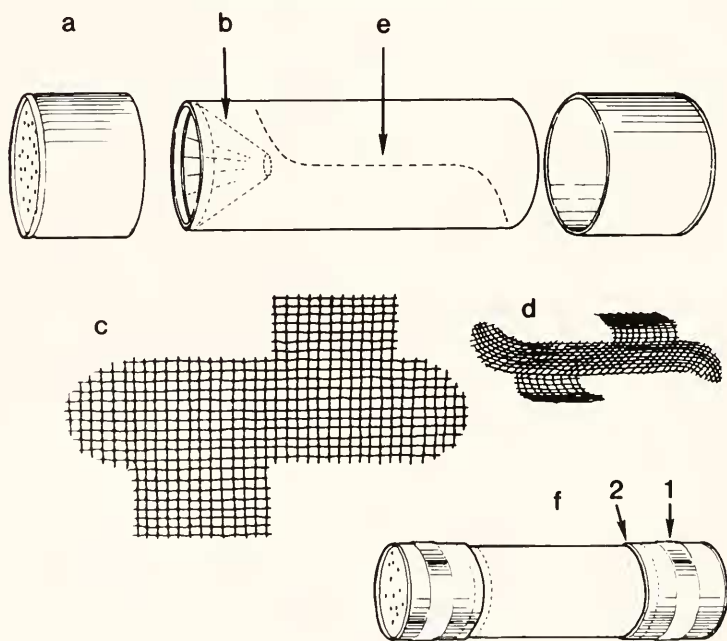


Fig. 1. A collector-mailing container for live insects.

or those collected with an aspirator can be blown into the container through the funnel. The complete unit with brief instructions on its use is mailed to the cooperator in an envelope. Cooperators should be urged to deposit the tube inside a post office rather than in an outdoor mail drop; the latter can get extremely hot. We made several hundred shipments via U.S. mail (special delivery) during the summer of 1980 and, although an occasional beetle died, most beetles in every shipment survived.

**Editor's note:** Because of the potential danger to agriculture of introducing new insect species or genotypes, there are federal and state regulations which cover interstate shipments of live insects. These usually require that live insect shipments be cleared in advance, and furnish permit labels for attachment to packages. Details can be obtained by contacting the state Department of Agriculture, or the nearest USDA-APHIS office.

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